

FIG. 1A

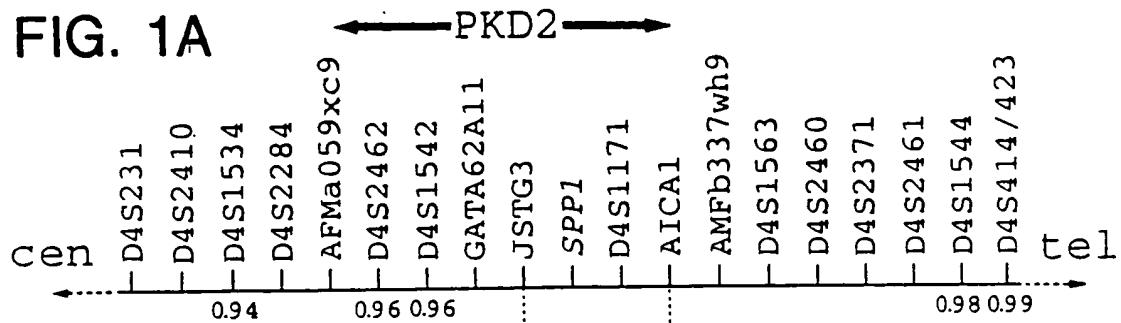


FIG. 1B

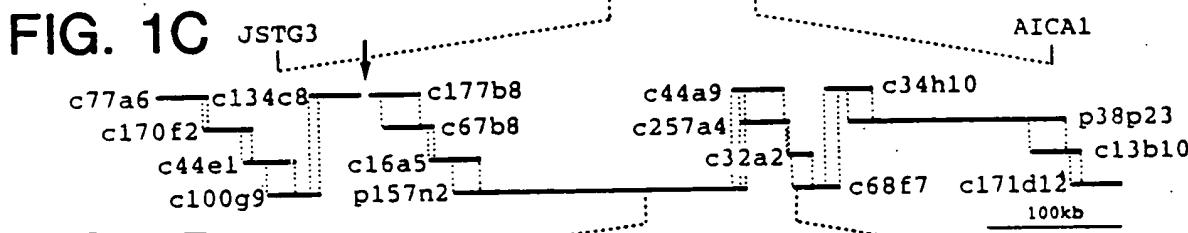
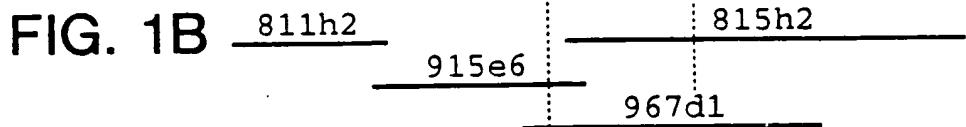


FIG. 1D

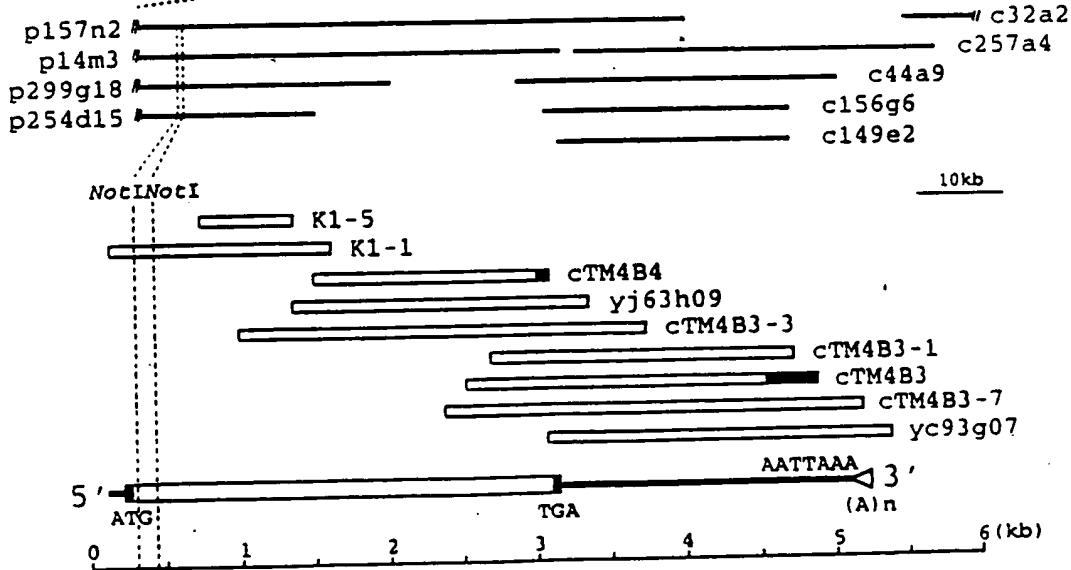


FIG. 1E

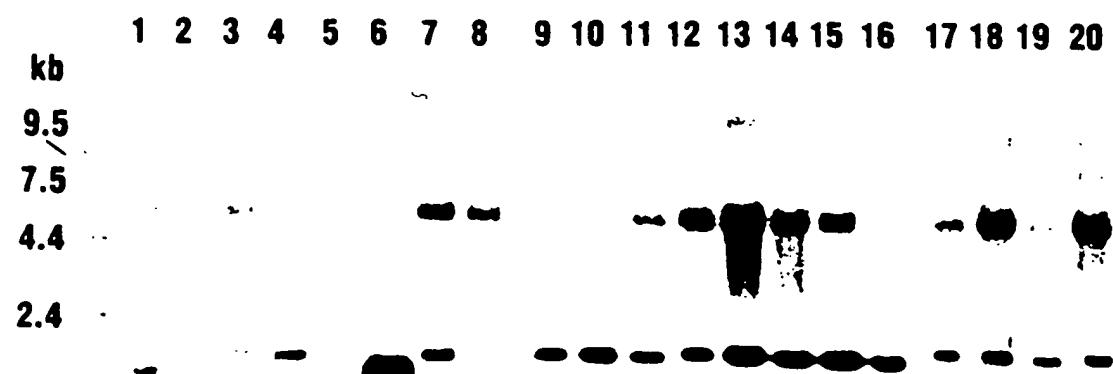
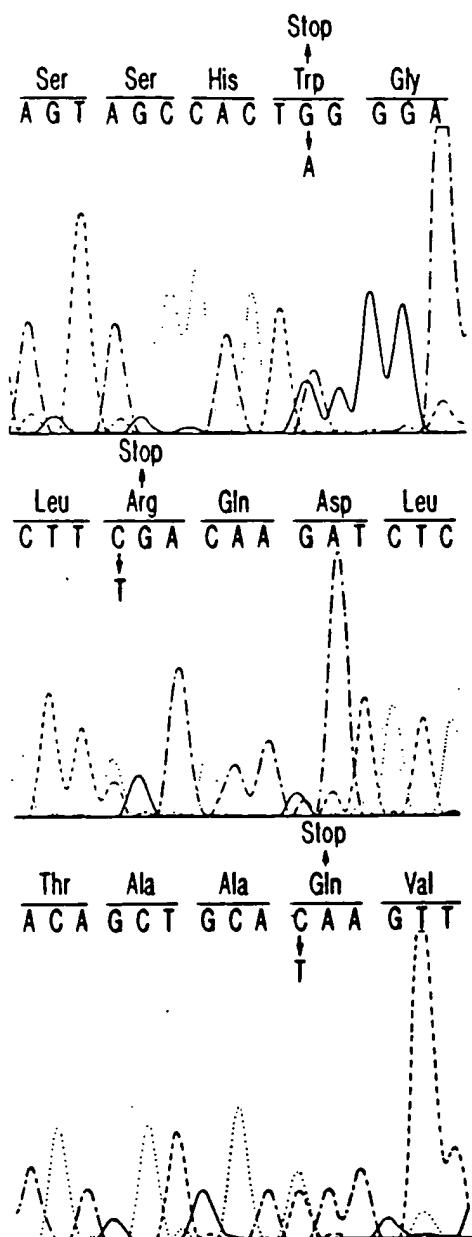
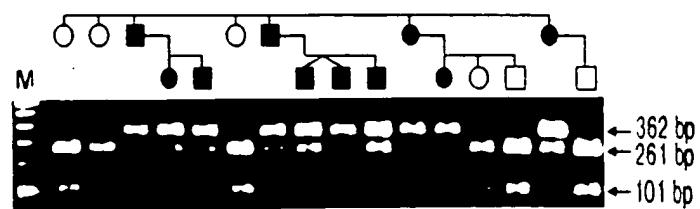


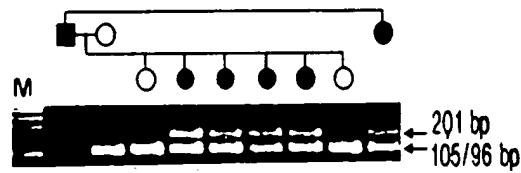
FIG. 2



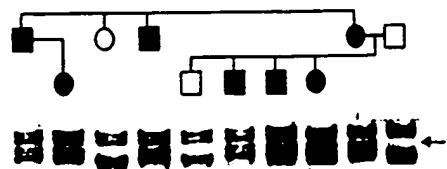
**Family 97**



**Family 1605**



**Family 1601**



**FIG. 3**

FIG. 4A

E I E A I F T K Y D Q D G D Q E L T E H E H Q Q M R D D L (754-782)  
I I n n n n n n n n n n n n n n n n (EF-hand test)  
E n n n n n n n n n n n n n n n n  
X Y Z -Y -X -Z -2 (coordination vertices)

FIG. 4B

|  |     |
|--|-----|
| CGC CGA GCG CGG CGC CGC GCA CCC GCG CGC CGG ACG CCA GTG ACC GCG  | 18  |
| ATG GTG AAC TCC AGT CGC GTG CAG CCT CAG CAG CCC GGG GAC GCC AAG<br>Met Val Asn Ser Ser Arg Val Gln Pro Gln Gln Pro Gly Asp Ala Lys     | 66  |
| 1 5 10 15  | 114 |
| CGG CCG CCC GCG CCC CGC GCG CCG GAC CCG GGC CGG CTG ATG GCT GGC<br>Arg Pro Pro Ala Pro Arg Ala Pro Asp Pro Gly Arg Leu Met Ala Gly     | 162 |
| 20 25 30   |     |
| TGC GCG GCC GTG GGC GCC AGC CTC GCC CCG GGC GGC CTC TGC GAG<br>Cys Ala Ala Val Gly Ala Ser Leu Ala Ala Pro Gly Gly Leu Cys Glu         | 210 |
| 35 40 45   |     |
| CAG CGG GGC CTG GAG ATC GAG ATG CAG CGC ATC CGG CAG GCG GCC GCG<br>Gln Arg Gly Leu Glu Ile Glu Met Gln Arg Ile Arg Gln Ala Ala Ala     | 258 |
| 50 55 60   |     |
| CGG GAC CCC CCG GCC GGA GCC GCG GCC TCC CCT TCT CCT CCG CTC TCG<br>Arg Asp Pro Pro Ala Gly Ala Ala Ala Ser Pro Ser Pro Pro Leu Ser     | 306 |
| 65 70 75 80  |     |
| TCG TGC TCC CCG CAG GCG TGG AGC CGC GAT AAC CCC GGC TTC GAG GCC<br>Ser Cys Ser Arg Gln Ala Trp Ser Arg Asp Asn Pro Gly Phe Glu Ala     | 354 |
| 85 90 95   |     |
| GAG GAG GAG GAG GAG GAG GTG GAA GGG GAA GAA GGC GGA ATG GTG GTG<br>Glu Glu Glu Glu Glu Val Glu Gly Glu Glu Gly Gly Met Val Val         | 402 |
| 100 105 110  |     |
| GAG ATG GAC GTA GAG TGG CGC CCG GGC AGC CGG AGG TCG GCC GCC TCC<br>Glu Met Asp Val Glu Trp Arg Pro Gly Ser Arg Arg Ser Ala Ala Ser     | 450 |
| 115 120 125  |     |
| TCG GCC GTG AGC TCC GTG GGC GCG CGG AGC CGG CGG GGG CTT GGG GGC TAC<br>Ser Ala Val Ser Ser Val Gly Ala Arg Ser Arg Gly Leu Gly Gly Tyr | 498 |
| 130 135 140  |     |
| CAC GGC GCG GGC CAC CCG AGC GGG AGG CGG CGC CGG CGA GAG GAC CAG<br>His Gly Ala Gly His Pro Ser Gly Arg Arg Arg Arg Glu Asp Gln         | 546 |
| 145 150 155 160  |     |
| GGC CCG CCG TGC CCC AGC CCA GTC GGC GGC GGG GAC CCG CTG CAT CGC<br>Gly Pro Pro Cys Pro Ser Pro Val Gly Gly Gly Asp Pro Leu His Arg     | 594 |
| 165 170 175  |     |
| CAC CTC CCC CTG GAA GGG CAG CCG CCC CGA GTG GCC TGG GCG GAG AGG<br>His Leu Pro Leu Glu Gly Gln Pro Pro Arg Val Ala Trp Ala Glu Arg     | 642 |
| 180 185 190  |     |

FIG. 5A

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| CTG | GTT | CGC | GGG | CTG | CGA | GGT | CTC | TGG | GGA | ACA | AGA | CTC | ATG | GAG | GAA | 690  |
| Leu | Val | Arg | Gly | Leu | Arg | Gly | Leu | Trp | Gly | Thr | Arg | Leu | Met | Glu | Glu |      |
| 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |     |     |      |
| AGC | AGC | ACT | AAC | CGA | GAG | AAA | TAC | CTT | AAA | AGT | GTT | TTA | CGG | GAA | CTG | 738  |
| Ser | Ser | Thr | Asn | Arg | Glu | Lys | Tyr | Leu | Lys | Ser | Val | Leu | Arg | Glu | Leu |      |
| 210 |     | 215 |     |     |     |     | 220 |     |     |     |     |     |     |     |     |      |
| GTC | ACA | TAC | CTC | CTT | TTT | CTC | ATA | GTC | TTG | TGC | ATC | TTG | ACC | TAC | GGC | 786  |
| Val | Thr | Tyr | Leu | Leu | Phe | Leu | Ile | Val | Leu | Cys | Ile | Leu | Thr | Tyr | Gly |      |
| 225 |     |     | 230 |     |     |     | 235 |     |     |     | 240 |     |     |     |     |      |
| ATG | ATG | AGC | TCC | AAT | GTG | TAC | TAC | TAC | ACC | CGG | ATG | ATG | TCA | CAG | CTC | 834  |
| Met | Met | Ser | Ser | Asn | Val | Tyr | Tyr | Tyr | Thr | Arg | Met | Met | Ser | Gln | Leu |      |
|     |     |     |     | 245 |     |     | 250 |     |     | 255 |     |     |     |     |     |      |
| TTC | CTA | GAC | ACC | CCC | GTG | TCC | AAA | ACG | GAG | AAA | ACT | AAC | TTT | AAA | ACT | 882  |
| Phe | Leu | Asp | Thr | Pro | Val | Ser | Lys | Thr | Glu | Lys | Thr | Asn | Phe | Lys | Thr |      |
|     |     | 260 |     |     |     | 265 |     |     |     |     | 270 |     |     |     |     |      |
| CTG | TCT | TCC | ATG | GAA | GAC | TTC | TGG | AAG | TTC | ACA | GAA | GGC | TCC | TTA | TTG | 930  |
| Leu | Ser | Ser | Met | Glu | Asp | Phe | Trp | Lys | Phe | Thr | Glu | Gly | Ser | Leu | Leu |      |
|     |     | 275 |     |     |     | 280 |     |     |     | 285 |     |     |     |     |     |      |
| GAT | GGG | CTG | TAC | TGG | AAG | ATG | CAG | CCC | AGC | AAC | CAG | ACT | GAA | GCT | GAC | 978  |
| Asp | Gly | Leu | Tyr | Trp | Lys | Met | Gln | Pro | Ser | Asn | Gln | Thr | Glu | Ala | Asp |      |
|     |     | 290 |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |      |
| AAC | CGA | AGT | TTC | ATC | TTC | TAT | GAG | AAC | CTG | CTG | TTA | GGG | GTT | CCA | CGA | 1026 |
| Asn | Arg | Ser | Phe | Ile | Phe | Tyr | Glu | Asn | Leu | Leu | Leu | Gly | Val | Pro | Arg |      |
|     |     | 305 |     |     | 310 |     |     | 315 |     |     | 320 |     |     |     |     |      |
| ATA | CGG | CAA | CTC | CGA | GTC | AGA | AAT | GGA | TCC | TGC | TCT | ATC | CCC | CAG | GAC | 1074 |
| Ile | Arg | Gln | Leu | Arg | Val | Arg | Asn | Gly | Ser | Cys | Ser | Ile | Pro | Gln | Asp |      |
|     |     | 325 |     |     |     | 330 |     |     |     |     | 335 |     |     |     |     |      |
| TTG | AGA | GAT | GAA | ATT | AAA | GAG | TGC | TAT | GAT | GTC | TAC | TCT | GTC | AGT | AGT | 1122 |
| Leu | Arg | Asp | Glu | Ile | Lys | Glu | Cys | Tyr | Asp | Val | Tyr | Ser | Val | Ser | Ser |      |
|     |     | 340 |     |     | 345 |     |     |     |     | 350 |     |     |     |     |     |      |
| GAA | GAT | AGG | GCT | CCC | TTT | GGG | CCC | CGA | AAT | GGA | ACC | GCT | TGG | ATC | TAC | 1170 |
| Glu | Asp | Arg | Ala | Pro | Phe | Gly | Pro | Arg | Asn | Gly | Thr | Ala | Trp | Ile | Tyr |      |
|     |     | 355 |     |     | 360 |     |     | 365 |     |     |     |     |     |     |     |      |
| ACA | AGT | GAA | AAA | GAC | TTG | AAT | GGT | AGT | AGC | CAC | TGG | GGA | ATC | ATT | GCA | 1218 |
| Thr | Ser | Glu | Lys | Asp | Leu | Asn | Gly | Ser | Ser | His | Trp | Gly | Ile | Ile | Ala |      |
|     |     | 370 |     |     | 375 |     |     | 380 |     |     |     |     |     |     |     |      |
| ACT | TAT | AGT | GGA | GCT | GGC | TAT | TAT | CTG | GAT | TTG | TCA | AGA | ACA | AGA | GAG | 1266 |
| Thr | Tyr | Ser | Gly | Ala | Gly | Tyr | Tyr | Leu | Asp | Leu | Ser | Arg | Thr | Arg | Glu |      |
|     |     | 385 |     |     | 390 |     |     |     |     | 395 |     |     |     | 400 |     |      |

FIG. 5B

09/06/03

GAA ACA GCT GCA CAA GTT GCT AGC CTC AAG AAA AAT GTC TGG CTG GAC 1314  
 Glu Thr Ala Ala Gln Val Ala Ser Leu Lys Lys Asn Val Trp Leu Asp  
                   405                  410                  415  
 CGA GGA ACC AGG GCA ACT TTT ATT GAC TTC TCA GTG TAC AAC GCC AAC 1362  
 Arg Gly Thr Arg Ala Thr Phe Ile Asp Phe Ser Val Tyr Asn Ala Asn  
                   420                  425                  430  
 ATT AAC CTG TTC TGT GTG GTC AGG TTA TTG GTT GAA TTC CCA GCA ACA 1410  
 Ile Asn Leu Phe Cys Val Val Arg Leu Leu Val Glu Phe Pro Ala Thr  
                   435                  440                  445  
 GGT GGT GTG ATT CCA TCT TGG CAA TTT CAG CCT TTA AAG CTG ATC CGA 1458  
 Gly Gly Val Ile Pro Ser Trp Gln Phe Gln Pro Leu Lys Leu Ile Arg  
                   450                  455                  460  
 TAT GTC ACA ACT TTT GAT TTC TTC CTG GCA GCC TGT GAG ATT ATC TTT 1506  
 Tyr Val Thr Thr Phe Asp Phe Phe Leu Ala Ala Cys Glu Ile Ile Phe  
                   465                  470                  475                  480  
 TGT TTC TTT ATC TTT TAC TAT GTG GTG GAA GAG ATA TTG GAA ATT CGC 1554  
 Cys Phe Phe Ile Phe Tyr Tyr Val Val Glu Glu Ile Leu Glu Ile Arg  
                   485                  490                  495  
 ATT CAC AAA CTA CAC TAT TTC AGG AGT TTC TGG AAT TGT CTG GAT GTT 1602  
 Ile His Lys Leu His Tyr Phe Arg Ser Phe Trp Asn Cys Leu Asp Val  
                   500                  505                  510  
 GTG ATC GTT GTG CTG TCA GTG GTA GCT ATA GGA ATT AAC ATA TAC AGA 1650  
 Val Ile Val Val Leu Ser Val Val Ala Ile Gly Ile Asn Ile Tyr Arg  
                   515                  520                  525  
 ACA TCA AAT GTG GAG GTG CTA CTA CAG TTT CTG GAA GAT CAA AAT ACT 1698  
 Thr Ser Asn Val Glu Val Leu Leu Gln Phe Leu Glu Asp Gln Asn Thr  
                   530                  535                  540  
 TTC CCC AAC TTT GAG CAT CTG GCA TAT TGG CAG ATA CAG TTC AAC AAT 1746  
 Phe Pro Asn Phe Glu His Leu Ala Tyr Trp Gln Ile Gln Phe Asn Asn  
                   545                  550                  555                  560  
 ATA GCT GCT GTC ACA GTA TTT TTT GTC TGG ATT AAG CTC TTC AAA TTC 1794  
 Ile Ala Ala Val Thr Val Phe Phe Val Trp Ile Lys Leu Phe Lys Phe  
                   565                  570                  575  
 ATC AAT TTT AAC AGG ACC ATG AGC CAG CTC TCG ACA ACC ATG TCT CGA 1842  
 Ile Asn Phe Asn Arg Thr Met Ser Gln Leu Ser Thr Thr Met Ser Arg  
                   580                  585                  590  
 TGT GCC AAA GAC CTG TTT GGC TTT GCT ATT ATG TTC TTC ATT ATT TTC 1890  
 Cys Ala Lys Asp Leu Phe Gly Phe Ala Ile Met Phe Phe Ile Ile Phe  
                   595                  600                  605

FIG. 5C

DNA SEQUENCE DATA

|   |      |     |     |
|---|------|-----|-----|
| CTA GCG TAT GCT CAG TTG GCA TAC CTT GTC TTT GGC ACT CAG GTC GAT | 1938 |     |     |
| Leu Ala Tyr Ala Gln Leu Ala Tyr Leu Val Phe Gly Thr Gln Val Asp |      |     |     |
| 610   | 615  | 620 |     |
| GAC TTC AGT ACT TTC CAA GAG TGT ATC TTC ACT CAA TTC CGT ATC ATT | 1986 |     |     |
| Asp Phe Ser Thr Phe Gln Glu Cys Ile Phe Thr Gln Phe Arg Ile Ile |      |     |     |
| 625   | 630  | 635 | 640 |
| TTG GGC GAT ATC AAC TTT GCA GAG ATT GAG GAA GCT AAT CGA GTT TTG | 2034 |     |     |
| Leu Gly Asp Ile Asn Phe Ala Glu Ile Glu Glu Ala Asn Arg Val Leu |      |     |     |
| 645   | 650  | 655 |     |
| GGA CCA ATT TAT TTC ACT ACA TTT GTG TTC TTT ATG TTC TTC ATT CTT | 2082 |     |     |
| Gly Pro Ile Tyr Phe Thr Thr Phe Val Phe Phe Met Phe Phe Ile Leu |      |     |     |
| 660   | 665  | 670 |     |
| TTG AAT ATG TTT TTG GCT ATC ATC AAT GAT ACT TAC TCT GAA GTG AAA | 2130 |     |     |
| Leu Asn Met Phe Leu Ala Ile Ile Asn Asp Thr Tyr Ser Glu Val Lys |      |     |     |
| 675   | 680  | 685 |     |
| TCT GAC TTG GCA CAG CAG AAA GCT GAA ATG GAA CTC TCA GAT CTT ATC | 2178 |     |     |
| Ser Asp Leu Ala Gln Gln Lys Ala Glu Met Glu Leu Ser Asp Leu Ile |      |     |     |
| 690   | 695  | 700 |     |
| AGA AAG GGC TAC CAT AAA GCT TTG GTC AAA CTA AAA CTG AAA AAA AAT | 2226 |     |     |
| Arg Lys Gly Tyr His Lys Ala Leu Val Lys Leu Lys Leu Lys Lys Asn |      |     |     |
| 705   | 710  | 715 | 720 |
| ACC GTG GAT GAC ATT TCA GAG AGT CTG CCG CAA GGA GGA GGC AAG TTA | 2274 |     |     |
| Thr Val Asp Asp Ile Ser Glu Ser Leu Arg Gln Gly Gly Lys Leu     |      |     |     |
| 725   | 730  | 735 |     |
| AAC TTT GAC GAA CTT CGA CAA GAT CTC AAA GGG AAG GGC CAT ACT GAT | 2322 |     |     |
| Asn Phe Asp Glu Leu Arg Gln Asp Leu Lys Gly Lys Gly His Thr Asp |      |     |     |
| 740   | 745  | 750 |     |
| GCA GAG ATT GAG GCA ATA TTC ACA AAG TAC GAC CAA GAT GGA GAC CAA | 2370 |     |     |
| Ala Glu Ile Glu Ala Ile Phe Thr Lys Tyr Asp Gln Asp Gly Asp Gln |      |     |     |
| 755   | 760  | 765 |     |
| GAA CTG ACC GAA CAT GAA CAT CAG CAG ATG AGA GAC GAC TTG GAG AAA | 2418 |     |     |
| Glu Leu Thr Glu His Glu His Gln Gln Met Arg Asp Asp Leu Glu Lys |      |     |     |
| 770   | 775  | 780 |     |
| GAG AGG GAG GAC CTG GAT TTG GAT CAC AGT TCT TTA CCA CGT CCC ATG | 2466 |     |     |
| Glu Arg Glu Asp Leu Asp Leu Asp His Ser Ser Leu Pro Arg Pro Met |      |     |     |
| 785   | 790  | 795 | 800 |
| AGC AGC CGA AGT TTC CCT CGA AGC CTG GAT GAC TCT GAG GAG GAT GAC | 2514 |     |     |
| Ser Ser Arg Ser Phe Pro Arg Ser Leu Asp Asp Ser Glu Glu Asp Asp |      |     |     |
| 805   | 810  | 815 |     |

FIG. 5D

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| GAT | GAA | GAT | AGC | GGA | CAT | AGC | TCC | AGA | AGG | AGG | GGA | AGC | ATT | TCT | AGT  | 2562 |
| Asp | Glu | Asp | Ser | Gly | His | Ser | Ser | Arg | Arg | Arg | Gly | Ser | Ile | Ser | Ser  |      |
| 820 |     |     |     |     |     |     |     | 825 |     |     |     |     |     |     | 830  |      |
| GGC | GTT | TCT | TAC | GAA | GAG | TTT | CAA | GTC | CTG | GTG | AGA | CGA | GTG | GAC | CGG  | 2610 |
| Gly | Val | Ser | Tyr | Glu | Glu | Phe | Gln | Val | Leu | Val | Arg | Arg | Val | Asp | Arg  |      |
| 835 |     |     |     |     |     |     |     | 840 |     |     |     |     |     |     | 845  |      |
| ATG | GAG | CAT | TCC | ATC | GGC | AGC | ATA | GTG | TCC | AAG | ATT | GAC | GCC | GTG | ATC  | 2658 |
| Met | Glu | His | Ser | Ile | Gly | Ser | Ile | Val | Ser | Lys | Ile | Asp | Ala | Val | Ile  |      |
| 850 |     |     |     |     |     |     | 855 |     |     |     |     |     |     |     | 860  |      |
| GTG | AAG | CTA | GAG | ATT | ATG | GAG | CGA | GCC | AAA | CTG | AAG | AGG | AGG | GAG | GTG  | 2706 |
| Val | Lys | Leu | Glu | Ile | Met | Glu | Arg | Ala | Lys | Leu | Lys | Arg | Arg | Glu | Val  |      |
| 865 |     |     |     |     |     | 870 |     |     |     | 875 |     |     |     |     | 880  |      |
| CTG | GGA | AGG | CTG | TTG | GAT | GGG | GTG | GCC | GAG | GAT | GAA | AGG | CTG | GGT | CGT  | 2754 |
| Leu | Gly | Arg | Leu | Leu | Asp | Gly | Val | Ala | Glu | Asp | Glu | Asp | Glu | Arg | Leu  |      |
| 885 |     |     |     |     |     | 890 |     |     |     |     |     |     |     |     | 895  |      |
| GAC | AGT | GAA | ATC | CAT | AGG | GAA | CAG | ATG | GAA | CGG | CTA | GTA | CGT | GAA | GAG  | 2802 |
| Asp | Ser | Glu | Ile | His | Arg | Glu | Gln | Met | Glu | Arg | Leu | Val | Arg | Glu | Glu  |      |
| 900 |     |     |     |     |     | 905 |     |     |     |     |     |     |     |     | 910  |      |
| TTG | GAA | CGC | TGG | GAA | TCC | GAT | GAT | GCA | GCT | TCC | CAG | ATC | AGT | CAT | GGT  | 2850 |
| Leu | Glu | Arg | Trp | Glu | Ser | Asp | Asp | Ala | Ala | Ser | Gln | Ile | Ser | His | Gly  |      |
| 915 |     |     |     |     |     | 920 |     |     |     |     |     |     |     |     | 925  |      |
| TTA | GGC | ACG | CCA | GTG | GGA | CTA | AAT | GGT | CAA | CCT | CGC | CCC | AGA | AGC | TCC  | 2898 |
| Leu | Gly | Thr | Pro | Val | Gly | Leu | Asn | Gly | Gln | Pro | Arg | Pro | Arg | Ser | Ser  |      |
| 930 |     |     |     |     |     | 935 |     |     |     |     |     |     |     |     | 940  |      |
| CGC | CCA | TCT | TCC | CAA | TCT | ACA | GAA | GGC | ATG | GAA | GGT | GCA | GGT | GGA | 2946 |      |
| Arg | Pro | Ser | Ser | Ser | Gln | Ser | Thr | Glu | Gly | Met | Glu | Gly | Ala | Gly | Gly  |      |
| 945 |     |     |     |     |     | 950 |     |     |     | 955 |     |     |     |     | 960  |      |
| AAT | GGG | AGT | TCT | AAT | GTC | CAC | GTA | TGA | TAT | GTG | TGT | TTC | AGT | ATG | TGT  | 2994 |
| Asn | Gly | Ser | Ser | Asn | Val | His | Val |     |     |     |     |     |     |     |      |      |
| 965 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |
| GTT | TCT | AAT | AAG | TGA | GGA | AGT | GGC | TGT | CCT | GAA | TTG | CTG | TAA | CAA | GCA  | 3042 |
| CAC | TAT | TTA | TAT | GCC | CTG | ACC | ACC | ATA | GGA | TGC | TAG | TCT | TTG | TGA | CCG  | 3090 |
| ATT | GCT | AAT | CTT | CTG | CAC | TTT | AAT | TTA | TTT | TAT | ATA | AAC | TTT | ACC | CAT  | 3138 |
| GGT | TCA | AAG | ATT | TTT | TTT | TCT | TTT | CAT | ATA | AGA | AAT | CTA | GGT | GTA | 3186 |      |
| AAT | ATT | GAG | TAC | AGA | AAA | AAA | ATC | TTC | ATG | ATG | TGT | ATT | GAG | CGG | TAC  | 3234 |
| GCC | CAG | TTG | CCA | CCA | TGA | CTG | AGT | CTT | CTC | AGT | TGA | CAA | TGA | AGT | AGC  | 3282 |

FIG. 5E

092209 - 040951

|   |      |
|---|------|
| CTT TTA AAG CTA GAA AAC TGT CAA AGG GCT TCT GAG TTT CAT TTC CAG | 3330 |
| TCA CAA AAA TCA GTA TTG TTA TTT TTT TCC AAG AGT GTG AAG GAA AAT | 3378 |
| GGG GCA ATT CCT TTC CAC TCT GGC ATA GTT CAT GAG CTT AAT ACA TAG | 3426 |
| CTT TCT TTT AAG AAA GGA GCC TTT TTT TTC AAC TAG CTT CCT GGG GTA | 3474 |
| AAC TTT TCT AAA AGA TAA AAT GGG AAG GAA CTC CAA ACT ATG ATA GAA | 3522 |
| TCT GTG TGA ATG GTT AAG ATG AAT GTT AAA TAC TAT GCT TTT TTG TAA | 3570 |
| GTT GAT CGT ATC TGA TGT CTG TGG GAC TAA CTG TAT CAC TTA ATT TTT | 3618 |
| ACC TTA TTT TGG CTC TAA TTT GAA TAA GCT GAG TAA AAC CAC CAA AGA | 3666 |
| TCA GTT ATA GGA TAA AAT GGC ATC TCT AAC CAT AAC ACA GGA GAA TTG | 3714 |
| GAA GGA GCC CTA AGT TGT CAC TCA GTT TAA TTT CTT TTA ATG GTT AGT | 3762 |
| TTA GCC TAA AGA TTT ATC TGC ATA TTC TTT TTC CCA TGT GGC TCT ACT | 3810 |
| CAT TTG CAA CTG AAT TTA ATG TTA TAA CTC ATC TAG TGA GAC CAA CTT | 3858 |
| ACT AAA TTT TTA GTA TGC ACT GAA AGT TTT TAT CCA ACA ATT ATG TTC | 3906 |
| ATT TTA AGC AAA ATT TTA AGA AAG TTT TGA AAT TCA TAA AGC ATT TGG | 3954 |
| TTT TAA ACT ATT TTA AGA ATA TAG TAC TCG GTC AGG TAT GNN NCA CGC | 4002 |
| CTG TAA TCC CAG CAC TTT GGG AGG CCG AAA CAG GCG AAT CAC TTG AGC | 4050 |
| CCA GGA GTT CAA GAC CAA CAT GGG CAA TGT GGC GAA ACT CCA TCT CTA | 4098 |
| CAA AAA ATG CAA AAA TAA AAA ATA TAG TAC TCA AGT ATT CTT GAT CCT | 4146 |
| GTG TTT CAA AAC TAG AAT TTG TAA TGC AAA TGG AGC TCA GTC TAA TAA | 4194 |
| AAA AGA GGT TTT GGT ATT AAA AGT TCA TAC ATT AGA CAG TAT CAG CCA | 4242 |
| AAA TTT GAG TTA GCA ACA CTG TTT TCT TTA CGA GAG GGT CTC ACC CAA | 4290 |
| ATT TAT GGG GAG AAA TCT ATT TCT CAA AAA AAA AAA ATC TTC TTT TAC | 4338 |
| AGA AAT GTT GAG TAA GGT GAC ATT TTG AGC GCT AAT AAG CAA AAG AGC | 4386 |
| ATG CAG TGC TGT TGA ATA ACC CTC ACT TGG AGA ACC AAG AGA ATC CTG | 4434 |
| TCG TTT AAT GCT ATA TTT TAA TTT CAC AAG TTG TTC ATT TAA CTG GTA | 4482 |
| GAA TGT CAG TCC AAT CTC CAA TGA GAA CAT GAG CAA ATA GAC CTT TCC | 4530 |

FIG. 5F

|   |      |
|---|------|
| AGG TTG AAA GTG AAA CAT ACT GGG TTT CTG TAA GTT TTT CCT CAT GGC | 4578 |
| TTC ATC TCT ATC TTT ACT TTC TCT TGA ATA TGC TAC ACA AAG TTC TTT | 4626 |
| ATT ACT ACA TAC TAA AGT TTG CAT TCC AGG GAT ATT GAC TGT ACA TAT | 4674 |
| TTA TGT ATA TGT ACC ATG TTG TTA CAT GTA AAC AAA CTT CAA TTT GAA | 4722 |
| GTG CAG CTA TTA TGT GGT ATC CAT GTG TAT CGA CCA TGT GCC ATA TAT | 4770 |
| CAA TTA TGG TCA CTA GAA AGT CTC TTT ATG ATA CTT TTT ATT GTA CTG | 4818 |
| TTT TTC ATT TCA CTT GCA AAA TTT TGC AGA ATT CCT CCT TTC TAC CCA | 4866 |
| TAA ATT ACA TAT AAT TTT TCT TCT TTA GTC ATG GAG AAC NCC CCC CCA | 4914 |
| TCA TCT CAN CCC TAT TAN CTT TCC CAT GTG TAC TGG TAT TAT TAA AAA | 4962 |
| GAC ATT TAC ATA CGC AAG TTT TTC ACT GAC AAN CAA GAA TGT TAT TAA | 5010 |
| TGT GTA ATA CTG AGC ACN TTT ACT TCT TAA TAA AAA CTT GAT ATA NT  | 5057 |

**FIG. 5G**